

Docket No. 1140-2
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Patent

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the present application.

Listing of Claims

1-72 (cancelled)

73. (currently amended) A method for identifying a protein having a desired activity, the method comprising:

(a) constructing a DNA library from unselected DNA molecules obtained directly from an environmental source;

(b) ~~mutagenizing at least one member of the library~~ subjecting the library to mutagenesis ~~wherein one or more DNA molecules of the library are mutated;~~

(c) expressing the DNA molecules of the mutagenized library to produce one or more proteins; and

(d) screening the proteins produced in (c) to identify one or more protein(s) with the desired activity.

74. (previously presented) The method of claim 73, wherein the DNA molecules comprise genomic DNA.

75. (previously presented) The method of claim 74, wherein the genomic DNA is at least about 38 kilobases to about 42 kilobases in length.

76. (previously presented) The method of claim 74, wherein the genomic DNA is at least about 40 kilobases in length.

77. (previously presented) The method of claim 73, wherein at least one of the DNA molecules comprises more than one open reading frame.

78. (previously presented) The method of claim 73, wherein the desired activity is an enzymatic activity.

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79. (withdrawn) The method of claim 78, wherein the enzymatic activity is hydrolase activity.
80. (withdrawn) The method of claim 78, wherein the enzymatic activity is alkaline phosphatase activity.
81. (withdrawn) The method of claim 78, wherein the enzymatic activity is beta-glycosidase activity.
82. (previously presented) The method of claim 78, wherein the enzymatic activity is a polyketide synthetase activity.
83. (previously presented) The method of claim 77, wherein the more than one open reading frames encode a complete metabolic pathway or a partial metabolic pathway.
84. (previously presented) The method of claim 73, wherein each member of the library comprises a vector.
85. (previously presented) The method of claim 84, wherein the vector comprises a viral particle, a baculovirus, a phage, a plasmid, a phagemid, a cosmid, a plasmid comprising a fertility (f)-factor (fosmid), a bacterial artificial chromosome, a viral DNA, or any combination thereof.
86. (previously presented) The method of claim 84, wherein the vector comprises chromosomal DNA, non-chromosomal DNA or synthetic DNA.
87. (previously presented) The method of claim 84, wherein the vector further comprises a regulatory sequence for effecting expression of at least a portion of the DNA molecule.
88. (previously presented) The method of claim 73, wherein the environmental source comprises a sample obtained from an arctic location, an antarctic location, a volcanic location or a tropical location.
89. (previously presented) The method of claim 73, wherein the environmental source comprises a sample of soil, water, permafrost, or plant material.

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90. (previously presented) The method of claim 73, further comprising producing the identified one or more proteins of (d).

91. (previously presented) The method of claim 73, wherein the screening comprises hybridization screening.

92. (previously presented) The method of claim 73, wherein the screening comprises screening for the presence or absence of a reaction product.

93. (previously presented) The method of claim 73, wherein the screening comprises screening for an enzymatic activity.